

REMARKS

Applicants initially note that this application was wrongly abandoned by Applicants' former representatives. Accordingly, Applicants wish to proceed in prosecuting the subject application in view of the accompanying Petition for Revival of An Application for Patent Abandoned Unintentionally Under 37 CFR 1.137(b).

The application has been reviewed in light of the outstanding Action. Claims 1-48 are currently pending, with claims 1, 6, 9, 10, 12, 17, 23, 28, 31, 34, 40 and 45 being independent. Each of the points raised in the Action are addressed below.

Restriction Requirement

The Action alleges that the claimed invention includes three separate inventions consisting of the Group I (claims 1-9, 12-27, 34-44 and 48), Group II (claims 10-11, 28-30 and 45-47) and Group III (claims 31-33). Applicants former representatives elected (allegedly without traverse) to prosecute the invention of Group I.

To that end, Applicants affirm the provisional election of Group I to prosecute, but with traverse. Specifically, Applicants respectfully submit that it would not only be beneficial to Applicants that all the claims be examined together, but that it would be highly efficient for the Patent and Trademark Office to do so, since all three groups of claims are related and that the prior art for one of the groups would be the closest prior art for any of the other remaining groups.

Specifically, the Examiner indicated in the Action that the inventions of Group I and II were distinct because the apparatus claimed can be used to practice a materially different process. The Action gives no support for this statement, only that since several of the features claimed in Group I were not included in Group II. Moreover, the Action does not list a

"materially different process" for which the apparatus may be used.

With regard to the claims of Group III, the Action alleges that the claims of Group II and the claims of Group III are unrelated since they "are not disclosed as capable of use together and they have different modes of operation, different functions or different effects. The Action gives a general statement that the two groups of claims recite "different inventions having different modes of operation and different effects", but the Action has given no support for this statement. Moreover, Applicants respectfully disagree and respectfully submit that the claims of both groups are related and that they do not include different modes of operation, different functions or different effects.

Accordingly, Applicants respectfully request that the restriction requirement be withdrawn.

Objection To The Abstract

The Abstract was objected to for the formalities noted on page 4 of the Action. To that end, Applicants submit a new Abstract addressing the concerns raised in the Action, and respectfully submit that the new Abstract fully conforms with the requirements of M.P.E.P. §608.01(b).

Objection To The Title

The Action also objected to the Title as being not descriptive. Accordingly, Applicants have substituted a new Title addressing this concern. Withdrawal of this objection is now respectfully requested.

§ 112 Rejection

Claim 48 was rejected under § 112, second paragraph for the reasons stated on page 5 of the action. Applicants have amended claim 48 to address the issues raised in the Action, and now submit that claim 48 meets the requirements of § 112, second paragraph. Withdrawal of this rejection is respectfully requested.

§ 102 Rejection

Claims 23, 26-27, 34, 36, 39-40 and 44 were rejected under 35 U.S.C. § 102 as having subject matter disclosed in U.S. Patent No. 5,356,365 (Brierton). For the following reasons, Applicants submit that the claimed invention is patentable over the prior art.

The Invention

Amended independent claim 23 is directed to an apparatus for selectively expressing one or more selected fluid materials out of a fluid container. Each of the selected fluid materials has a selected density and the fluid container includes a round enclosure having a rotation axis, a flexible wall and an exit port sealably communicating with the container for enabling the selected fluid materials contained therein to be expressed out of the container through the exit port. The apparatus includes a centrifuge rotor having a round centrifuge chamber of selected volume and a channel provided thereon for directing an expressor fluid from a central axis toward a circumference of the rotor. The centrifuge rotor is controllably rotatable around the central axis by a motor mechanism. The apparatus further includes a flexible membrane sealably attached to a surface of the rotor such that the centrifuge chamber is divided into a first chamber for receiving the fluid container coaxially with the central rotation axis and a second round fluid sealed chamber having a rotation axis coincident with the central axis for receiving the expressor fluid. The apparatus also includes a pump for controllably pumping a selected volume of the expressor fluid into and out of the second fluid sealed centrifuge chamber. The fluid container has a flexible wall and is receivable within the centrifuge chamber such that the flexible wall of the fluid container faces the flexible wall of the expandable enclosure. The apparatus still further includes a mechanism for filling the fluid container with any preselected variable volume of the one more selected fluid materials which is less than the selected volume of the centrifuge chamber and a retaining mechanism for holding the fluid container completely within the centrifuge chamber upon expansion of the

expandable enclosure. Amended claims 34 and 40 recited similar patentable features.

It is a feature of the present invention that the channel in the rotor dispenses expressor fluid quickly and easily to the outer circumference of the chamber, so that separated fluids may be expressed out of the apparatus.

The Brierton Reference

As understood by Applicants, Brierton is directed to a temperature controlled centrifuge having a centrifuge bowl having a base and rim. Material to be centrifuged is received by the bowl. The bowl includes an upper and lower section via a substantially flexible membrane. The lower chamber is connected to a fluid source in which fluid received raises and lowers the flexible membrane.

Analysis

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. 2131, quoting, Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Accordingly, Applicants could find nothing in Brierton which discloses, or for that matter would have taught or suggested, a channel in the rotor of a centrifuge for directing an expressor fluid from a central axis of a rotor of a centrifuge toward an outer circumference thereof. For at least that reason, the claimed invention recited in claims 23, 34 and 40 is patentable over the prior art. Withdrawal of this rejection is now respectfully requested.

§ 103 Rejection

Claims 1-9, 12-22, 24-25, 37-38 and 42-43 were rejected under 35 U.S.C. § 103 as reciting subject matter which would have been obvious over Brierton in view of U.S. Patent No. 3,244,362 (Hein). For the following reasons, Applicants submit that the claimed invention is patentable over the prior art.

The Invention

Amended independent claim 1 is directed to an apparatus for selectively expressing one or more selected fluid materials out of a fluid container. Each of the selected fluid materials has a selected density and the fluid container includes a round enclosure having a flexible wall and an exit port sealably communicating with the fluid container for enabling the selected fluid materials contained therein to be expressed out of the fluid container through the exit port. The apparatus includes a centrifuge rotor having a round centrifuge chamber of selected volume and a channel provided thereon for directing an expressor fluid from a central axis toward a circumference of the rotor, where the centrifuge rotor being controllably rotatable around the central axis by a motor mechanism, a round expandable enclosure disposed within the centrifuge chamber having a rotation axis coincident with the central rotation axis and a flexible wall. The fluid container includes a rotation axis and being coaxially receivable within the centrifuge chamber and the expandable enclosure being sealably connected to a source of an expressor fluid which has a density selected to be greater than the density of each of the selected one or more fluid materials disposed in the fluid container. The apparatus also includes a pump for controllably pumping a selected volume of the expressor fluid into and out of the expandable enclosure wherein the fluid container is receivable within the centrifuge chamber, and a retaining mechanism for holding the fluid container within the centrifuge chamber in a coaxial position wherein the flexible wall of the fluid container is in contact with the flexible wall of the expandable enclosure. Amended independent claims 6, 9, 12 and 17 recite similar patentable features.

The Hein Reference

Hein is understood by Applicants to be directed to a centrifuging apparatus for centrifuging and fractionating large or small batches of liquid. The apparatus generally includes a centrifuge having a rotor mounted on a stand, and a hydraulic network. The hydraulic network flexes a base of a bag which contains liquid for centrifuging.

Requirements for Obviousness

To establish a *prima facie* case of obviousness, three criteria are required. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must have taught or suggested to one of ordinary skill in the art at the time the invention was made all the claim limitations at the time the invention was made. See M.P.E.P. 2143.

Accordingly, Applicant submits that the outstanding rejection under § 103 fails at least to meet the third requirement of *prima facie* obviousness, in that Brierton and Hein, when taken alone or in combination, would have failed to teach or suggest to one of ordinary skill in the art at the time the invention was made of a channel on a centrifuge rotor for directing an expressor fluid from a central axis of the rotor toward an outer circumference of the rotor. For at least that reason, the claimed invention is patentable over the prior art. Accordingly, Applicants respectfully request that the § 103 rejection be withdrawn.

Since the remainder to the claims all depend from one or another of the independent claims, they are patentable for the same reasons as discussed above.

CONCLUSION

In view of the foregoing remarks, Applicants submit that the issues raised in the outstanding Office Action have all been addressed. Accordingly, Applicants respectfully requests favorable reconsideration and early passage to issue of the present application.

The present response includes the Petition to Revive fee. In the event that it is determined that additional fees are due, the Commissioner is hereby authorized to charge the undersigned's Deposit Account No. 50-0311.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 935-3000. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

ATTACHMENT

IN THE TITLE:

Please replace the current title with the following title given below:

--BIOLOGICAL PROCESSING APPARATUS FOR EXPRESSING FLUID MATERIAL--.

IN THE SPECIFICATION

Please replace the current abstract with the following abstract given below:

--A method and apparatus for selectively expressing one or more selected fluid materials out of a fluid container, including a centrifuge rotor having a round centrifuge chamber of selected volume, a round expandable enclosure disposed within the centrifuge chamber having a rotation axis coincident with the central rotation axis and a flexible wall, a pump for controllably pumping a selected volume of expressor fluid into and out of the expandable enclosure wherein the fluid container is receivable within the centrifuge chamber, and a retaining mechanism for holding the fluid container within the centrifuge chamber in a coaxial position. The flexible wall of the fluid container is in contact with the flexible wall of the expandable enclosure.--.

IN THE CLAIMS:

1. (Amended) Apparatus for selectively expressing one or more selected fluid materials out of a fluid container, wherein each of the selected fluid materials has a selected density and wherein the fluid container comprises a round enclosure having a flexible wall and an exit port sealably communicating with the fluid container for enabling the selected fluid materials contained therein to be expressed out of the fluid container through the exit port, the apparatus

comprising:

a centrifuge rotor having a round centrifuge chamber of selected volume and a channel provided thereon for directing an expressor fluid from a central axis toward a circumference of the rotor, wherein the centrifuge rotor being controllably rotatable around the [a] central axis by a motor mechanism;

a round expandable enclosure disposed within the centrifuge chamber having a rotation axis 10 coincident with the central rotation axis and a flexible wall, the fluid container having a rotation axis and being coaxially receivable within the centrifuge chamber, the expandable enclosure being sealably connected to a source of an expressor fluid which has a density selected to be greater than the density of each of the selected one or more fluid materials disposed in the fluid container;

a pump for controllably pumping a selected volume of the expressor fluid into and out of the expandable enclosure wherein the fluid container is receivable within the centrifuge chamber;

a retaining mechanism for holding the fluid container within the centrifuge chamber in a coaxial position wherein the flexible wall of the fluid container is in contact with the flexible wall of the expandable enclosure.

12. (Amended) Apparatus for selectively expressing one or more selected fluid materials out of a fluid container, wherein each of the selected fluid materials has a selected density and wherein the fluid container comprises a round enclosure having a flexible wall and an exit port sealably communicating with the fluid container for enabling the selected fluid materials contained therein to be expressed out of the fluid container through the exit port, the apparatus comprising:

a separation housing having a round chamber of selected volume, the housing having a central axis and the round chamber including a wall having a channel positioned thereon for directing an expressor fluid from the central axis toward a circumference of the round chamber;

a round expandable enclosure disposed within the round chamber having an axis coincident with the central axis of the separation chamber and a flexible wall, the fluid container having an axis and being coaxially receivable within the round chamber, the expandable enclosure being sealably connected to a source of an expressor fluid which has a density selected to be greater than the density of each of the selected one or more fluid materials disposed in the fluid container;

a pump for controllably pumping a selected volume of the expressor fluid into and out of the expandable enclosure wherein the fluid container is receivable within the round chamber;

a retaining mechanism for holding the fluid container within the round chamber in a coaxial position wherein the flexible wall of the fluid container is in contact with the flexible wall of the expandable enclosure.

23. (Amended) Apparatus for selectively expressing one or more selected fluid materials out of a fluid container, wherein each of the selected fluid materials has a selected density and wherein the fluid container comprises a round enclosure having a rotation axis, a flexible wall and an exit port sealably communicating with the container for enabling the selected fluid materials contained therein to be expressed out of the container through the exit port, the apparatus comprising:

a centrifuge rotor having a round centrifuge chamber of selected volume and a channel provided thereon for directing an expressor fluid from a central axis toward a circumference of the rotor, wherein the centrifuge rotor being controllably rotatable around the [a] central axis by a motor mechanism;

a flexible membrane sealably attached to a surface of the rotor such that the centrifuge chamber is divided into a first chamber for receiving the fluid container coaxially with the central rotation axis and a second round fluid sealed chamber having a rotation axis coincident with the central axis for receiving the [an] expressor fluid;

a pump for controllably pumping a selected volume of the expressor fluid into and out of the second fluid sealed centrifuge chamber;

wherein the fluid container has a flexible wall and is receivable within the centrifuge chamber such that the flexible wall of the fluid container faces the flexible wall of the expandable enclosure;

a mechanism for filling the fluid container with any preselected variable volume of the one or more selected fluid materials which is less than the selected volume of the centrifuge chamber;

a retaining mechanism for holding the fluid container completely within the centrifuge chamber upon expansion of the expandable enclosure.

34. (Amended) Apparatus for selectively expressing one or more selected fluid materials out of a fluid container, wherein each of the selected fluid materials has a selected density and wherein the fluid container comprises a round enclosure having a flexible wall and an exit port sealably communicating with the fluid container for enabling the selected fluid materials contained therein to be expressed out of the fluid container through the exit port, the apparatus comprising:

a centrifuge rotor having a round centrifuge chamber of selected volume and a channel provided thereon for directing an expressor fluid from a central axis toward a circumference of the rotor, wherein the centrifuge rotor being controllably rotatable around the [a] central axis by a motor mechanism;

a round expandable enclosure disposed within the centrifuge chamber having a rotation axis coincident with the central rotation axis and a flexible wall, the fluid container having a rotation axis and being coaxially receivable within the centrifuge chamber, the expandable enclosure being sealably connected to a source of the [an] expressor fluid;

a pump for controllably pumping a selected volume of the expressor fluid into and out of the

expandable enclosure wherein the fluid container is receivable within the centrifuge chamber; a heater mechanism having a control mechanism for selectively controlling the temperature of the expressor fluid; a retaining mechanism for holding the fluid container within the first chamber in a coaxial position wherein the flexible wall of the fluid container is in contact with the flexible wall of the fluid container.

40. (Amended) Apparatus for selectively expressing one or more selected fluid materials out of a fluid container, wherein each of the selected fluid materials has a selected density and wherein the fluid container comprises a round enclosure having a rotation axis, a flexible wall and an exit port sealably communicating with the container for enabling the selected fluid materials contained therein to be expressed out of the container through the exit port, the apparatus comprising:

a centrifuge rotor having a round centrifuge chamber of selected volume and a channel provided thereon for directing an expressor fluid from a central axis toward a circumference of the rotor, wherein the centrifuge rotor being controllably rotatable around the [a] central axis by a motor mechanism;

a flexible membrane sealably attached to a surface of the rotor such that the centrifuge chamber is divided into a first chamber for receiving the fluid container coaxially with the central rotation axis and a second round fluid sealed chamber having a rotation axis coincident with the central axis for receiving an expressor fluid;

a pump for controllably pumping a selected volume of the expressor fluid into and out of the second fluid sealed centrifuge chamber;

a heater mechanism having a control mechanism for selectively controlling the temperature of the expressor fluid;

a retaining mechanism for holding the container within the first chamber in a position wherein the flexible wall of the container is in contact with an outside surface of the flexible membrane.

48. (Amended) The apparatus of claim 1 further comprising a temperature controller and a temperature sensor [connected to a program], wherein the temperature sensor produces a signal indicative of a temperature of the fluid container which is received by the temperature controller, and wherein the temperature controller controls a temperature of the fluid container based on the signal [of the fluid materials is sensed by the temperature sensor, the program being connected to a temperature mechanism which controls the temperature of the expressor fluid].

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